

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-50 (Canceled).

51. (Currently Amended) A method for diagnosing a level of a disease state of a subject, said method comprising

(1) ~~determining said level of said disease state in said subject by a method comprising determining~~, for said disease state, an interpolated response profile for which similarity is greatest between a diagnostic profile and said determined interpolated response profile, said diagnostic profile comprising measurements of a first plurality of cellular constituents in one or more cells of said subject, and said determined interpolated response profile comprising measurements of a second plurality of cellular constituents comprising at least a portion of said first plurality, each said measurement being extracted from an interpolated response curve of said measurement as a function of level of said disease state, wherein said interpolated response curve is obtained by a method comprising

- (i) providing response profiles of one or more cells of one or more analogous subjects for said disease state, wherein each of said response profiles comprises measurements of said second plurality of cellular constituents in one or more cells of one of said one or more analogous subjects at one of a plurality of levels of said disease state, and
- (ii) interpolating measurements of each said cellular constituent in said response profiles over said plurality of levels of said disease state to generate an interpolated response curve so that an interpolated response profile comprising measurements of said portion of said first plurality of cellular constituents at a same level of said disease state may be extracted over a range of levels of said disease state,

wherein the level of disease state correlated to said determined interpolated response profile indicates said level of said disease state of said subject;

(2) determining statistical significance of said similarity between said determined interpolated response profile and said diagnostic profile; and

(3) diagnosing said patient as having said level of said disease correlated to said determined interpolated response profile if said statistical significance is at least 95%.

52. (Currently Amended) The method of claim 51, wherein said determined interpolated response profile ~~for which similarity is greatest between said diagnostic profile and said interpolated response profile~~ yields a maximum correlation between said diagnostic profile and said determined interpolated response profile.

53. (Previously Presented) The method of claim 52, wherein said statistical significance is determined by comparing the value of said maximum correlation to an expected probability distribution of values of maximum correlation.

54. (Currently Amended) The method of claim 53, wherein said expected probability distribution of values of maximum correlation is obtained by a method comprising

[[(1)] (a) randomizing said diagnostic profile data with respect to cellular constituents to generate a permuted diagnostic profile;

[[(2)] (b) obtaining an interpolated response profile, said interpolated response profile yielding a maximum correlation between said permuted diagnostic profile and said interpolated response profile; and

[[(3)] (c) repeating steps ~~(1) and (2)~~ (a) and (b) to construct a probability distribution of values of maximum correlation.

55. (Currently Amended) The method of claim 53, wherein said expected probability distribution of values of maximum correlation is obtained by a method comprising

[[(1)] (a) randomizing said response profile data with respect to the cellular constituents to generate permuted interpolated response curves;

[[(2)] (b) obtaining an interpolated response profile, said interpolated response profile being extracted from said permuted interpolated response curves and yielding a maximum correlation between said diagnostic profile and said interpolated response profile; and

[[(3)] (c) repeating steps ~~(1) and (2)~~ (a) and (b) to construct a probability distribution of values of maximum correlation.

56. (Currently Amended) The method of claim 51, wherein said determined interpolated response profile ~~for which similarity is greatest between said diagnostic profile~~

~~and said interpolated response profile~~ yields a minimum difference between said diagnostic profile and said determined interpolated response profile.

57. (Previously Presented) The method of claim 56, wherein said statistical significance is determined by comparing the value of the minimum difference to an expected probability distribution of values of minimum difference.

58. (Currently Amended) The method of claim 57, wherein said expected probability distribution of values of minimum difference is obtained by a method comprising

[[(1)] (a) randomizing said diagnostic profile data with respect to the cellular constituents to generate a permuted diagnostic profile;

[[(2)] (b) obtaining an interpolated response profile, said interpolated response profile yielding a minimum difference between said permuted diagnostic profile and said interpolated response profile; and

[[(3)] (c) repeating steps ~~(1) and (2)~~ (a) and (b) to construct a probability distribution of values of minimum difference.

59. (Currently Amended) The method of claim 57, wherein said expected probability distribution of values of minimum difference is obtained by a method comprising

[[(1)] (a) randomizing said response profile data with respect to the cellular constituents to generate permuted interpolated response curves;

[[(2)] (b) obtaining an interpolated response profile, said interpolated response profile being extracted from said permuted interpolated response curves and yielding a minimum difference between said diagnostic profile and said interpolated response profile; and

[[(3)] (c) repeating steps ~~(1) and (2)~~ (a) and (b) to construct a probability distribution of values of minimum difference.

Claims 60-69 (Canceled).